

WHAT IS CLAIMED IS:

1. A mechanical dishwashing composition comprising:
 - (A) an anti-scaling polymer formed from
 - (i) 50-99% by weight of the polymer of an olefinically unsaturated carboxylic monomer;
 - (ii) 1 to 50% of at least one monomer unit selected from the group consisting of copolymerizable sulfonated monomers, copolymerizable nonionic monomers and mixtures thereof;
 - (B) 0.1 to 99.9% of a vehicle releasing at least an effective amount to prevent scaling of the polymer into a penultimate rinse cycle of a dishwashing sequence to prevent scaling.
2. The composition according to claim 1 wherein the polymer has a weight average molecular weight ranging from about 1500 to about 250,000.
3. The composition according to claim 1 further comprising releasing at least an effective amount to prevent scaling of the polymer into a final rinse of the dishwashing cycle.
4. The composition according to claim 3 wherein the polymer is released in a relative weight ratio of about 1:10 to about 10:1 in the penultimate and the final rinse, respectively.
5. The composition according to claim 4 wherein the ratio is about 1:5 to about 5:1 for release in the penultimate and the final rinse, respectively.

6. The composition according to claim 5 wherein the ratio is about 1 for release in the penultimate and the final rinse, respectively.
7. The composition according to claim 1 wherein the olefinically unsaturated carboxylic monomer is in acid or salt form selected from the group consisting of monocarboxylic acids, dicarboxylic acids, polycarboxylic acids and mixtures thereof.
8. The composition according to claim 7 wherein the aliphatic acids are monoolefinic acrylic acids containing a substituent selected from the group consisting of hydrogen, halogen, hydroxyl, C₁-C₂₀ alkyl, C₆-C₁₂ aryl, C₆-C₁₆ aralkyl, C₇-C₁₆ alkaryl, C₅-C₁₆ cycloaliphatic radicals and mixtures thereof.
9. The composition according to claim 1 wherein the sulfonated monomers are compounds in acid or respective salt form selected from the group consisting of allyl hydroxyproparyl sulfonate ether, allylsulfonic acid, methallylsulfonic acid, styrene sulfonic acid, vinyl toluene sulfonic acid, acrylamino alkane sulfonic acid, allyloxybenzene sulfonic acid, 2-alkylallyloxybenzene sulfonic acids and mixtures thereof.
10. The composition according to claim 1 wherein the nonionic monomers are vinyl or allyl compounds selected from the group consisting of C₁-C₆ alkyl esters of (meth) acrylic acid, acrylamide, C₁-C₆ alkyl substituted acrylamides, N-alkyl-substituted acrylamides, N-alkanol-substituted acrylamides and N-vinyl pyrrolidone.

11. The composition according to claim 1 wherein the polymer is a tetra polymer of sodium methallyl sulfonate, acrylic acid, methyl methacrylate and 4-sulfophenol methallyl ether, the ether having a formula:



where M represents hydrogen, alkali metal, alkaline earth metal or ammonium ions.

12. A method for washing soiled dishes comprising charging a mechanical dishwashing composition to a wash liquor in a washing machine, the composition comprising:

(A) an anti-scaling polymer formed from

(i) 50-99% by weight of the polymer of an olefinically unsaturated carboxylic acid monomer;

(ii) 1 to 50% of at least one monomer unit selected from the group consisting of copolymerizable sulfonated monomers, copolymerizable nonionic monomers and mixtures thereof;

(B) 0.1 to 99.9% of a vehicle releasing at least an effective amount to prevent scaling of the polymer into a penultimate rinse cycle of a dishwashing sequence to prevent scaling.